

**BCS 04-5004-PCT_OK1 Verringerte AktivitätSEQUENZPROTOKOLL.ST25
SEQUENCE LISTING**

<110> Bayer CropScience GmbH

<120> Plants with reduced activity of a starch phosphorylating enzyme

<130> BCS 04-5004-PCT

<150> EP04090088.8

<151> 2004-03-05

<150> EP04090121.7

<151> 2004-03-29

<150> US60/550,022

<151> 2004-03-05

<150> EP04090203.3

<151> 2004-05-21

<150> EP04090484.9

<151> 2004-12-09

<160> 11

<170> PatentIn version 3.1

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<212> DNA

<213> Arabidopsis thaliana

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<221> CDS

<222> BCS 04-5004-PCT_OK1 Verringerte Aktivität_SEQUENZPROTOKOLL .ST25
(1)..(3591)

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Thr Arg Asn Ser Ser Ser Leu Pro Arg Leu Val Asn Ile Thr His	20	25	30
96			
aga gtt aat ctc agc cac caa tct cac cga ctc aga aac tcc aat tct			
Arg Val Asn Leu Ser His Gln Ser His Arg Leu Arg Asn Ser Asn Ser	35	40	45
144			
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Arg Leu Thr Cys Thr Ala Thr Ser Ser Ser Thr Ile Glu Glu Gln Arg	50	55	60
192			
aag aag aaa gat gga tca gga acg aaa gtg agg ttg aat gtg agg tta			
Lys Lys Lys Asp Gly Ser Gly Thr Lys Val Arg Leu Asn Val Arg Leu	65	70	75
240			
gat cat caa gtt aat ttt ggt gac cat gtg gct atg ttt gga tca gct			
Asp His Gln Val Asn Phe Gly Asp His Val Ala Met Phe Gly Ser Ala	85	90	95
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aaa gag att ggt tca tgg aaa aag aaa tcg cct ttg aat tgg agt gag			
Lys Glu Ile Gly Ser Trp Lys Lys Ser Pro Leu Asn Trp Ser Glu	100	105	110
336			
aat gga tgg gtt tgt gag ttg gaa ctt gac ggt ggt cag gtt ttg gag			
Asn Gly Trp Val Cys Glu Leu Glu Leu Asp Gly Gly Gln Val Leu Glu	115	120	125
384			
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Tyr Lys Phe Val Ile Val Lys Asn Asp Gly Ser Leu Ser Trp Glu Ser	130	135	140
432			
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Gly Asp Asn Arg Val Leu Lys Val Pro Asn Ser Gly Asn Phe Ser Val	145	150	155
480			
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Val Cys His Trp Asp Ala Thr Arg Glu Thr Leu Asp Leu Pro Gln Glu	165	170	175
528			
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Val Gly Asn Asp Asp Asp Val Gly Asp Gly Gly His Glu Arg Asp Asn	180	185	190
576			
cat gat gtt ggt gat gat aga gta gtg gga agt gaa aat ggt gcg cag			
His Asp Val Gly Asp Asp Arg Val Val Gly Ser Glu Asn Gly Ala Gln	195	200	205
624			
ctt cag aag agt aca ttg ggt ggg caa tgg caa ggt aaa gat gcg tcc			
Leu Gln Lys Ser Thr Leu Gly Gly Gln Trp Gln Gly Lys Asp Ala Ser	210	215	220
672			
ttt atg cgt tct aat gat cat ggt aac aga gaa gtt ggt aga aat tgg			
Phe Met Arg Ser Asn Asp His Gly Asn Arg Glu Val Gly Arg Asn Trp	225	230	235
720			
gat act agt ggt ctt gaa ggc aca gct ctt aag atg gtt gag ggt gat			
768			

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Asp Thr Ser Gly Leu Glu Gly Thr Ala Leu Lys Met Val Glu Gly Asp
245 250 255

cgc aac tct aag aac tgg tgg aga aag ctt gaa atg gta cgc gag gtt 816
Arg Asn Ser Lys Asn Trp Trp Arg Lys Leu Glu Met Val Arg Glu Val
260 265 270

ata gtt ggg agt gtt gag agg gag gaa cga ttg aag gcg ctc ata tac 864
Ile Val Gly Ser Val Glu Arg Glu Glu Arg Leu Lys Ala Leu Ile Tyr
275 280 285

tct gca att tat ttg aag tgg ata aac aca ggt cag att cct tgt ttt 912
Ser Ala Ile Tyr Leu Lys Trp Ile Asn Thr Gly Gln Ile Pro Cys Phe
290 295 300

gaa gat gga ggg cat cac cgt cca aac agg cat gcc gag att tcc aga 960
Glu Asp Gly Gly His His Arg Pro Asn Arg His Ala Glu Ile Ser Arg
305 310 315 320

ctt ata ttc cgt gag ttg gag cac att tgc agt aag aaa gat gct act 1008
Leu Ile Phe Arg Glu Leu Glu His Ile Cys Ser Lys Lys Asp Ala Thr
325 330 335

cca gag gaa gtg ctt gtt gct cggtt gaa atc cat ccgtt ttt cct tct 1056
Pro Glu Glu Val Leu Val Ala Arg Lys Ile His Pro Cys Leu Pro Ser
340 345 350

ttc aaa gca gag ttt act gca gct gtc cct cta act ccgtt att agg gac 1104
Phe Lys Ala Glu Phe Thr Ala Ala Val Pro Leu Thr Arg Ile Arg Asp
355 360 365

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Ile Ala His Arg Asn Asp Ile Pro His Asp Leu Lys Gln Glu Ile Lys
370 375 380

cat acg ata caa aat aag ctt cac cgg aat gct ggt cca gaa gat cta 1200
His Thr Ile Gln Asn Lys Leu His Arg Asn Ala Gly Pro Glu Asp Leu
385 390 395 400

att gca aca gaa gca atg ctt caa cga att acc gag acc cca gga aaa 1248
Ile Ala Thr Glu Ala Met Leu Gln Arg Ile Thr Glu Thr Pro Gly Lys
405 410 415

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Lys Ile Ser Met Asp Asp Arg Gly Leu Ser Ala Leu Asn Leu Phe Phe
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gag ttg att aaa acc atg cat tct cta gct tct tta aga gaa aca att 1488
Glu Leu Ile Lys Thr Met His Ser Leu Ala Ser Leu Arg Glu Thr Ile
485 490 495

ata aag gaa ctt aat agc ggc ttg cga aat gat gct cct gat act gcc 1536
Ile Lys Glu Leu Asn Ser Gly Leu Arg Asn Asp Ala Pro Asp Thr Ala
500 505 510

att gca atg cgc cag aag tgg cgc ctt tgt gag atc ggc ctc gag gac 1584

BCS 04-5004-PCT_OK1 Verringerte Aktivität_SEQUENZPROTOKOLL.ST25
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cct cct aat gtg gag att tta gga aaa gct cta gga att cca gag aat Pro Pro Asn Val Glu Ile Leu Gly Lys Ala Leu Gly Ile Pro Glu Asn 645 650 655	1968
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 Asn Leu Ile Leu Ser Thr Glu Gly Arg Ser Arg Thr Ser Lys Ser Ser
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 gcg acc aaa aaa acg gat aag aac agc tta tct aag aaa aaa aca gat 2496
 Ala Thr Lys Lys Thr Asp Lys Asn Ser Leu Ser Lys Lys Lys Thr Asp
 820 825 830
 aag aag agc tta tct atc gat gat gaa gaa tca aag cct ggt tcc tca 2544
 Lys Lys Ser Leu Ser Ile Asp Asp Glu Glu Ser Lys Pro Gly Ser Ser
 835 840 845
 tct tcc aat agc ctc ctt tac tct tcc aag gat atc cct agt gga gga 2592
 Ser Ser Asn Ser Leu Leu Tyr Ser Ser Lys Asp Ile Pro Ser Gly Gly
 850 855 860
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 Ile Ile Ala Leu Ala Asp Ala Asp Val Pro Thr Ser Gly Ser Lys Ser
 865 870 875 880
 gct gca tgt ggt ctt ctt gca tct tta gca gaa gcc tct agt aaa gtg 2688
 Ala Ala Cys Gly Leu Leu Ala Ser Leu Ala Glu Ala Ser Ser Lys Val
 885 890 895
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 His Ser Glu His Gly Val Pro Ala Ser Phe Lys Val Pro Thr Gly Val
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 Glu Glu Lys Phe Ala Ser Leu Leu Glu Lys Leu Glu Thr Ala Arg Pro
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 Glu Gly Gly Glu Leu Asp Asp Ile Cys Asp Gln Ile His Glu Val Met
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 Ala Ala Gly Val Ser Gln Arg 1040 1045 Met Ala Val Leu Val
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Pro	Gly	Leu	Gly	Glu	Thr	Leu	Ala	Ser	Gly	Thr	Arg	Gly	Thr	Pro	
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tgg	aga	ctc	gct	tcg	ggg	aag	ctc	gac	ggg	att	gta	caa	acc	tta	3339
Trp	Arg	Leu	Ala	Ser	Gly	Lys	Leu	Asp	Gly	Ile	Val	Gln	Thr	Leu	
1100						1105					1110				

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cct	gct	gat	gga	aaa	tac	gtt	cgg	ttg	acc	gtg	gac	tat	agc	aaa	3429
Pro	Ala	Asp	Gly	Lys	Tyr	Val	Arg	Leu	Thr	Val	Asp	Tyr	Ser	Lys	
1130						1135					1140				

aaa	cgt	tta	act	gtt	gac	tcg	gtg	ttt	aga	cag	cag	ctc	ggt	cag	3474
Lys	Arg	Leu	Thr	Val	Asp	Ser	Val	Phe	Arg	Gln	Gln	Leu	Gly	Gln	
1145						1150					1155				

aga	ctc	ggg	tcg	gtt	ggg	ttc	ttc	ttg	gaa	aga	aac	ttt	ggc	tgt	3519
Arg	Leu	Gly	Ser	Val	Gly	Phe	Phe	Leu	Glu	Arg	Asn	Phe	Gly	Cys	
1160						1165					1170				

gct	caa	gac	gtt	gaa	ggg	tgt	ttg	gtt	ggg	gaa	gat	gtt	tac	att	3564
Ala	Gln	Asp	Val	Glu	Gly	Cys	Leu	Val	Gly	Glu	Asp	Val	Tyr	Ile	
1175						1180					1185				

gtt	cag	tca	agg	cca	caa	cct	ctg	tag							3591
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 35 40 45Arg Leu Thr Cys Thr Ala Thr Ser Ser Ser Thr Ile Glu Glu Gln Arg
 50 55 60

BCS 04-5004-PCT_OK1 Verringerte Aktivität_SEQUENZPROTOKOLL.ST25
 Lys Lys Lys Asp Gly Ser Gly Thr Lys Val Arg Leu Asn Val Arg Leu
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Asp His Gln Val Asn Phe Gly Asp His Val Ala Met Phe Gly Ser Ala
 85 90 95

Lys Glu Ile Gly Ser Trp Lys Lys Ser Pro Leu Asn Trp Ser Glu
 100 105 110

Asn Gly Trp Val Cys Glu Leu Glu Leu Asp Gly Gly Gln Val Leu Glu
 115 120 125

Tyr Lys Phe Val Ile Val Lys Asn Asp Gly Ser Leu Ser Trp Glu Ser
 130 135 140

Gly Asp Asn Arg Val Leu Lys Val Pro Asn Ser Gly Asn Phe Ser Val
 145 150 155 160

Val Cys His Trp Asp Ala Thr Arg Glu Thr Leu Asp Leu Pro Gln Glu
 165 170 175

Val Gly Asn Asp Asp Asp Val Gly Asp Gly Gly His Glu Arg Asp Asn
 180 185 190

His Asp Val Gly Asp Asp Arg Val Val Gly Ser Glu Asn Gly Ala Gln
 195 200 205

Leu Gln Lys Ser Thr Leu Gly Gln Trp Gln Gly Lys Asp Ala Ser
 210 215 220

Phe Met Arg Ser Asn Asp His Gly Asn Arg Glu Val Gly Arg Asn Trp
 225 230 235 240

Asp Thr Ser Gly Leu Glu Gly Thr Ala Leu Lys Met Val Glu Gly Asp
 245 250 255

Arg Asn Ser Lys Asn Trp Trp Arg Lys Leu Glu Met Val Arg Glu Val
 260 265 270

Ile Val Gly Ser Val Glu Arg Glu Glu Arg Leu Lys Ala Leu Ile Tyr
 275 280 285

Ser Ala Ile Tyr Leu Lys Trp Ile Asn Thr Gly Gln Ile Pro Cys Phe
 290 295 300

Glu Asp Gly Gly His His Arg Pro Asn Arg His Ala Glu Ile Ser Arg
 305 310 315 320

Leu Ile Phe Arg Glu Leu Glu His Ile Cys Ser Lys Lys Asp Ala Thr
 325 330 335

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 Pro Glu Glu Val Leu Val Ala Arg Lys Ile His Pro Cys Leu Pro Ser
 340 345 350
 Phe Lys Ala Glu Phe Thr Ala Ala Val Pro Leu Thr Arg Ile Arg Asp
 355 360 365
 Ile Ala His Arg Asn Asp Ile Pro His Asp Leu Lys Gln Glu Ile Lys
 370 375 380
 His Thr Ile Gln Asn Lys Leu His Arg Asn Ala Gly Pro Glu Asp Leu
 385 390 395 400
 Ile Ala Thr Glu Ala Met Leu Gln Arg Ile Thr Glu Thr Pro Gly Lys
 405 410 415
 Tyr Ser Gly Asp Phe Val Glu Gln Phe Lys Ile Phe His Asn Glu Leu
 420 425 430
 Lys Asp Phe Phe Asn Ala Gly Ser Leu Thr Glu Gln Leu Asp Ser Met
 435 440 445
 Lys Ile Ser Met Asp Asp Arg Gly Leu Ser Ala Leu Asn Leu Phe Phe
 450 455 460
 Glu Cys Lys Lys Arg Leu Asp Thr Ser Gly Glu Ser Ser Asn Val Leu
 465 470 475 480
 Glu Leu Ile Lys Thr Met His Ser Leu Ala Ser Leu Arg Glu Thr Ile
 485 490 495
 Ile Lys Glu Leu Asn Ser Gly Leu Arg Asn Asp Ala Pro Asp Thr Ala
 500 505 510
 Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu Ile Gly Leu Glu Asp
 515 520 525
 Tyr Phe Phe Val Leu Leu Ser Arg Phe Leu Asn Ala Leu Glu Thr Met
 530 535 540
 Gly Gly Ala Asp Gln Leu Ala Lys Asp Val Gly Ser Arg Asn Val Ala
 545 550 555 560
 Ser Trp Asn Asp Pro Leu Asp Ala Leu Val Leu Gly Val His Gln Val
 565 570 575
 Gly Leu Ser Gly Trp Lys Gln Glu Glu Cys Leu Ala Ile Gly Asn Glu
 580 585 590
 Leu Leu Ala Trp Arg Glu Arg Asp Leu Leu Glu Lys Glu Gly Glu Glu
 595 600 605

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Asp Gly Lys Thr Ile Trp Ala Met Arg Leu Lys Ala Thr Leu Asp Arg
610 615 620

Ala Arg Arg Leu Thr Ala Glu Tyr Ser Asp Leu Leu Leu Gln Ile Phe
625 630 635 640

Pro Pro Asn Val Glu Ile Leu Gly Lys Ala Leu Gly Ile Pro Glu Asn
645 650 655

Ser Val Lys Thr Tyr Thr Glu Ala Glu Ile Arg Ala Gly Ile Ile Phe
660 665 670

Gln Ile Ser Lys Leu Cys Thr Val Leu Leu Lys Ala Val Arg Asn Ser
675 680 685

Leu Gly Ser Glu Gly Trp Asp Val Val Val Pro Gly Ser Thr Ser Gly
690 695 700

Thr Leu Val Gln Val Glu Ser Ile Val Pro Gly Ser Leu Pro Ala Thr
705 710 715 720

Ser Gly Gly Pro Ile Ile Leu Leu Val Asn Lys Ala Asp Gly Asp Glu
725 730 735

Glu Val Ser Ala Ala Asn Gly Asn Ile Ala Gly Val Met Leu Leu Gln
740 745 750

Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala Arg Gln Glu Lys
755 760 765

Ile Val Phe Val Thr Cys Asp Asp Asp Asp Lys Val Ala Asp Ile Arg
770 775 780

Arg Leu Val Gly Lys Phe Val Arg Leu Glu Ala Ser Pro Ser His Val
785 790 795 800

Asn Leu Ile Leu Ser Thr Glu Gly Arg Ser Arg Thr Ser Lys Ser Ser
805 810 815

Ala Thr Lys Lys Thr Asp Lys Asn Ser Leu Ser Lys Lys Lys Thr Asp
820 825 830

Lys Lys Ser Leu Ser Ile Asp Asp Glu Glu Ser Lys Pro Gly Ser Ser
835 840 845

Ser Ser Asn Ser Leu Leu Tyr Ser Ser Lys Asp Ile Pro Ser Gly Gly
850 855 860

Ile Ile Ala Leu Ala Asp Ala Asp Val Pro Thr Ser Gly Ser Lys Ser
865 870 875 880

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 Ala Ala Cys Gly Leu Leu Ala Ser Leu Ala Glu Ala Ser Ser Lys Val
 885 890 895

His Ser Glu His Gly Val Pro Ala Ser Phe Lys Val Pro Thr Gly Val
 900 905 910

Val Ile Pro Phe Gly Ser Met Glu Leu Ala Leu Lys Gln Asn Asn Ser
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Glu Glu Lys Phe Ala Ser Leu Leu Glu Lys Leu Glu Thr Ala Arg Pro
 930 935 940

Glu Gly Gly Glu Leu Asp Asp Ile Cys Asp Gln Ile His Glu Val Met
 945 950 955 960

Lys Thr Leu Gln Val Pro Lys Glu Thr Ile Asn Ser Ile Ser Lys Ala
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Phe Leu Lys Asp Ala Arg Leu Ile Val Arg Ser Ser Ala Asn Val Glu
 980 985 990

Asp Leu Ala Gly Met Ser Ala Ala Gly Leu Tyr Glu Ser Ile Pro Asn
 995 1000 1005

Val Ser Pro Ser Asp Pro Leu Val Phe Ser Asp Ser Val Cys Gln
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Val Trp Ala Ser Leu Tyr Thr Arg Arg Ala Val Leu Ser Arg Arg
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Ala Ala Gly Val Ser Gln Arg Glu Ala Ser Met Ala Val Leu Val
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Gln Glu Met Leu Ser Pro Asp Leu Ser Phe Val Leu His Thr Val
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Ser Pro Ala Asp Pro Asp Ser Asn Leu Val Glu Ala Glu Ile Ala
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Pro Gly Leu Gly Glu Thr Leu Ala Ser Gly Thr Arg Gly Thr Pro
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Trp Arg Leu Ala Ser Gly Lys Leu Asp Gly Ile Val Gln Thr Leu
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Ala Phe Ala Asn Phe Ser Glu Glu Leu Leu Val Ser Gly Thr Gly
 1115 1120 1125

Pro Ala Asp Gly Lys Tyr Val Arg Leu Thr Val Asp Tyr Ser Lys
 1130 1135 1140

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Arg Leu Gly Ser Val Gly Phe Phe Leu Glu Arg Asn Phe Gly Cys
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Lys Glu Lys Lys Arg Arg Asp Ser Ser Lys Gln Pro Leu Val His Leu		
65	70	75

cag gtt t t cta gag cac cag gtt aag t t t ggt gag cat gta ggc att	291	
Gln Val Cys Leu Glu His Gln Val Lys Phe Gly Glu His Val Gly Ile		
80	85	90

atc ggt tcc aca aag gag ctt ggt tca t g g gag gag cag gtt gaa ctg	339	
Ile Gly Ser Thr Lys Glu Leu Gly Ser Trp Glu Gln Val Glu Leu		
95	100	105

gaa tgg act aca aat ggt tgg gtc tgc c a g ctt aag ctc cct gga gaa	387		
Glu Trp Thr Thr Asn Gly Trp Val Cys Gln Leu Lys Leu Pro Gly Glu			
110	115	120	125

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aca ctt gtg gag ttt aaa ttt gtt ata ttt ttg gtg gga gga	aaa gat	435
Thr Leu Val Glu Phe Lys Phe Val Ile Phe Leu Val Glu Glu	Lys Asp	
130 135	140	
aaa ata tgg gaa gat ggt aat aac cgt gtt gtt gag ctg ccg	aag gat	483
Lys Ile Trp Glu Asp Gly Asn Asn Arg Val Val Glu Leu Pro	Lys Asp	
145 150	155	
ggt aag ttt gat ata gta tgc cac tgg aat aga aca gaa gag	cca tta	531
Gly Lys Phe Asp Ile Val Cys His Trp Ash Arg Thr Glu Glu	Pro Leu	
160 165	170	
gaa ctt tta gga aca cca aag ttt gag ttg gtc gga gaa gct	gaa aag	579
Glu Leu Leu Gly Thr Pro Lys Phe Glu Leu Val Gly Glu Ala	Glu Lys	
175 180	185	
aat act ggc gag gat gct tca gca tct gta act ttt gca cct	gaa aaa	627
Asn Thr Gly Glu Asp Ala Ser Ala Ser Val Thr Phe Ala Pro	Glu Lys	
190 195	200	205
gtt caa gat att tca gtt gtt gag aat ggt gat cca gca cca	gag gcc	675
Val Gln Asp Ile Ser Val Val Glu Asn Gly Asp Pro Ala Pro	Glu Ala	
210 215	220	
gag tca agc aaa ttt ggt ggg caa tgg caa gga agt aaa act	gtt ttc	723
Glu Ser Ser Lys Phe Gly Gly Gln Trp 230	Val Phe	
225	235	
atg aga tca aat gag cat ctg aat aag gag gct gat agg atg	tgg gat	771
Met Arg Ser Asn Glu His Leu Asn Lys Glu Ala Asp Arg Met	Trp Asp	
240 245	250	
aca act ggg ctt gat gga ata gca ctg aaa ctg gtt gag ggc	gat aaa	819
Thr Thr Gly Leu Asp Gly Ile Ala Leu Lys Leu Val Glu Gly	Asp Lys	
255 260	265	
gca tcc agg aac tgg tgg cggt aag tta gag gtt gtt cgc ggg	ata ttg	867
Ala Ser Arg Asn Trp Trp Arg Lys Leu Glu Val Val Arg Gly	Ile Leu	
270 275	280	285
tca gaa tct ttt gat gac cag agt cgt ctg ggg gcc ctt gta	tac tca	915
Ser Glu Ser Phe Asp Asp Gln Ser Arg 290	Tyr Ser	
295	300	
gct att tat ctg aag tgg att tat aca ggt cag ata tcg tgc	ttt gaa	963
Ala Ile Tyr Leu Lys Trp Ile Tyr Thr Gly Gln Ile Ser Cys	Phe Glu	
305 310	315	
gat ggt ggc cac cat cgg cct aac aaa cat gct gag ata tcg	agg caa	1011
Asp Gly Gly His His Arg Pro Asn Lys His Ala Glu Ile Ser	Arg Gln	
320 325	330	
ata ttc cgt gaa ctt gaa atg atg tat tat ggg aaa acc aca	tca gcc	1059
Ile Phe Arg Glu Leu Glu Met Met Tyr Tyr Gly Lys Thr Thr	Ser Ala	
335 340	345	
aag gat gtt ctc gtg att cgc aaa att cat ccc ttt tta cct	tca ttt	1107
Lys Asp Val Leu Val Ile Arg Lys Ile His Pro Phe Leu Pro	Ser Phe	
350 355	360	365
aag tca gag ttt aca gcc tct gtc cct cta aca cga att cgt	gat att	1155
Lys Ser Glu Phe Thr Ala Ser Val Pro Leu Thr Arg Ile Arg	Asp Ile	
370 375	380	
gct cac cgg aat gac atc cca cat gat ctc aag caa gaa atc	aag cat	1203
Ala His Arg Asn Asp Ile Pro His Asp Leu Lys Gln Glu Ile Lys His		
385 390	395	

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act ata caa aac aaa ctt cat cgt aat gct gga cct gag gat ctt att	1251
Thr Ile Gln Asn Lys Leu His Arg Asn Ala Gly Pro Glu Asp Leu Ile	
400 405 410	
gct aca gaa gtc atg ctt gct agg att act aag acc cct gga gaa tac	1299
Ala Thr Glu Val Met Leu Ala Arg Ile Thr Lys Thr Pro Gly Glu Tyr	
415 420 425	
agt gaa aca ttt gtt gaa caa ttc acg ata ttt tat agc gaa cta aaa	1347
Ser Glu Thr Phe Val Glu Gln Phe Thr Ile Phe Tyr Ser Glu Leu Lys	
430 435 440 445	
gat ttc ttc aat gct ggc agc cta ttt gag caa ctg gag tcc atc aag	1395
Asp Phe Phe Asn Ala Gly Ser Leu Phe Glu Gln Leu Glu Ser Ile Lys	
450 455 460	
gaa tct ctg aac gag tca ggc tta gaa gtt ctc tca tcc ttt gtg gaa	1443
Glu Ser Leu Asn Glu Ser Gly Leu Glu Val Leu Ser Ser Phe Val Glu	
465 470 475	
acc aaa agg agt ttg gac caa gtg gat cat gca gaa gat ttg gat aaa	1491
Thr Lys Arg Ser Leu Asp Gln Val Asp His Ala Glu Asp Leu Asp Lys	
480 485 490	
aat gat acc att caa att ttg atg act acc ttg caa tca tta tct tct	1539
Asn Asp Thr Ile Gln Ile Leu Met Thr Thr Leu Gln Ser Leu Ser Ser	
495 500 505	
cta aga tcg gtt cta atg aag ggc ctt gaa agt ggc ctt aga aat gat	1587
Leu Arg Ser Val Leu Met Lys Gly Leu Glu Ser Gly Leu Arg Asn Asp	
510 515 520 525	
gcg cct gat aat gct ata gca atg cga caa aag tgg cgc ctt tgt gaa	1635
Ala Pro Asp Asn Ala Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu	
530 535 540	
att agt ctt gag gat tat tca ttt gtt ctg tta agc aga ttc atc aat	1683
Ile Ser Leu Glu Asp Tyr Ser Phe Val Leu Leu Ser Arg Phe Ile Asn	
545 550 555	
act ctt gaa gcc tta ggt gga tca gct tca ctt gca aag gat gta gct	1731
Thr Leu Glu Ala Leu Gly Gly Ser Ala Ser Leu Ala Lys Asp Val Ala	
560 565 570	
aga aat act act cta tgg gat act act ctt gat gcc ctt gtc att ggc	1779
Arg Asn Thr Thr Leu Trp Asp Thr Thr Leu Asp Ala Leu Val Ile Gly	
575 580 585	
atc aat caa gtt agc ttt tca ggt tgg aaa aca gat gaa tgt att gcc	1827
Ile Asn Gln Val Ser Phe Ser Gly Trp Lys Thr Asp Glu Cys Ile Ala	
590 595 600 605	
ata ggg aat gag att ctt tcc tgg aag caa aaa ggt cta tct gaa agt	1875
Ile Gly Asn Glu Ile Leu Ser Trp Lys Gln Lys Gly Leu Ser Glu Ser	
610 615 620	
gaa ggt tgt gaa gat ggg aaa tat att tgg tca cta aga ctt aaa gct	1923
Glu Gly Cys Glu Asp Gly Lys Tyr Ile Trp Ser Leu Arg Leu Lys Ala	
625 630 635	
aca ctg gac aga gca cgg aga tta acg gaa gag tac tct gaa gca ctt	1971
Thr Leu Asp Arg Ala Arg Arg Leu Thr Glu Glu Tyr Ser Glu Ala Leu	
640 645 650	
ctt tct ata ttc cct gaa aaa gta atg gtt att ggg aaa gcc ctt gga	2019
Leu Ser Ile Phe Pro Glu Lys Val Met Val Ile Gly Lys Ala Leu Gly	
655 660 665	

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ata cca gat aac agt gtg aga act tac aca gag gca gaa att cgt gct Ile Pro Asp Asn Ser Val Arg Thr Tyr Thr Glu Ala Glu Ile Arg Ala 670 675 680 685	2067
ggc att gtt ttt cag gta tct aaa cta tgc aca gta ctt cag aaa gca Gly Ile Val Phe Gln Val Ser Lys Leu Cys Thr Val Leu Gln Lys Ala 690 695 700	2115
att cga gaa gta ctt gga tca act ggc tgg gat gtt ctt gtt cct gga Ile Arg Glu Val Leu Gly Ser Thr Gly Trp Asp Val Leu Val Pro Gly 705 710 715	2163
gtg gcc cat gga act ctg atg cgg gtg gaa aga att ctt cct gga tca Val Ala His Gly Thr Leu Met Arg Val Glu Arg Ile Leu Pro Gly Ser 720 725 730	2211
tta cct tca tct gtc aaa gaa cct gtg gtt cta att gta gat aag gct Leu Pro Ser Ser Val Lys Glu Pro Val Val Leu Ile Val Asp Lys Ala 735 740 745	2259
gat gga gat gaa gag gtc aaa gct gct ggg gat aat ata gtt ggt gtt Asp Gly Asp Glu Glu Val Lys Ala Ala Gly Asp Asn Ile Val Gly Val 750 755 760 765	2307
att ctt ctt cag gaa cta cct cac ctt tca cat ctt ggt gtt aga gct Ile Leu Leu Gln Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala 770 775 780	2355
cgt caa gag aat gtt gta ttt gta act tgt gaa tat gat gac aca gtt Arg Gln Glu Asn Val Val Phe Val Thr Cys Glu Tyr Asp Asp Thr Val 785 790 795	2403
aca gat gtg tat ttg ctt gag gga aaa tat atc aga tta gaa gca tca Thr Asp Val Tyr Leu Leu Glu Gly Lys Tyr Ile Arg Leu Glu Ala Ser 800 805 810	2451
tcc atc aat gtc aat ctc tca ata gtt tca gaa aaa aat gac aat gct Ser Ile Asn Val Asn Leu Ser Ile Val Ser Glu Lys Asn Asp Asn Ala 815 820 825	2499
gtc tct aca gaa cca aat agt aca ggg aat cca ttt caa cag aaa ctc Val Ser Thr Glu Pro Asn Ser Thr Gly Asn Pro Phe Gln Gln Lys Leu 830 835 840 845	2547
caa aat gaa ttc tct cta cca tcg gat atc gag atg cca ctg caa atg Gln Asn Glu Phe Ser Leu Pro Ser Asp Ile Glu Met Pro Leu Gln Met 850 855 860	2595
tct aag caa aaa agc aaa tca gga gtg aat ggt agt ttt gct gct ctt Ser Lys Gln Lys Ser Lys Ser Gly Val Asn Gly Ser Phe Ala Ala Leu 865 870 875	2643
gag ctt tca gaa gct tca gtg gaa tca gct ggt gca aaa gct gct gca Glu Leu Ser Glu Ala Ser Val Glu Ser Ala Gly Ala Lys Ala Ala Ala 880 885 890	2691
tgc aga act ctt tct gtt ctt gct tca ttg tct aat aaa gtc tat agt Cys Arg Thr Leu Ser Val Leu Ala Ser Leu Ser Asn Lys Val Tyr Ser 895 900 905	2739
gat caa gga gtt cca gca gcc ttt aga gtc cct tct ggt gct gtg ata Asp Gln Gly Val Pro Ala Ala Phe Arg Val Pro Ser Gly Ala Val Ile 910 915 920 925	2787
cca ttt gga tca atg gag gat gcg ctc aag aaa agt gga tca ctg gaa Pro Phe Gly Ser Met Glu Asp Ala Leu Lys Lys Ser Gly Ser Leu Glu 930 935 940	2835

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tcc	ttt	aca	agc	ctt	cta	gaa	aag	att	gaa	aca	gcc	aaa	gtc	gaa	aat		2883
Ser	Phe	Thr	Ser	Leu	Leu	Glu	Lys	Ile	Glu	Thr	Ala	Lys	Val	Glu	Asn		
945						950						955					
ggt	gaa	gtt	gat	agc	ctg	gcg	ttg	gag	cta	caa	gca	ata	att	tca	cat		2931
Gly	Glu	Val	Asp	Ser	Leu	Ala	Leu	Glu	Leu	Gln	Ala	Ile	Ile	Ser	His		
960						965						970					
ctt	tcc	cca	ccg	gag	gag	act	att	ata	ttt	ctc	aaa	aga	atc	ttc	cca		2979
Leu	Ser	Pro	Pro	Glu	Glu	Thr	Ile	Ile	Phe	Leu	Lys	Arg	Ile	Phe	Pro		
975						980					985						
cag	gat	gtc	cgg	ttg	att	gtt	aga	tct	agt	gct	aat	gtg	gag	gat	ttg		3027
Gln	Asp	Val	Arg	Leu	Ile	Val	Arg	Ser	Ser	Ala	Asn	Val	Glu	Asp	Leu		
990						995					1000					1005	
gct	ggt	atg	tca	gct	gct	ggt	ctc	tat	gat	tca	att	ccc	aat	gtc			3072
Ala	Gly	Met	Ser	Ala	Ala	Gly	Leu	Tyr	Asp	Ser	Ile	Pro	Asn	Val			
1010									1015							1020	
agt	ctc	atg	gac	cca	tgt	gcc	ttt	gga	gct	gcg	gtt	ggg	aag	gtt			3117
Ser	Leu	Met	Asp	Pro	Cys	Ala	Phe	Gly	Ala	Ala	Val	Gly	Lys	Val			
1025									1030							1035	
tgg	gct	tct	tta	tac	aca	agg	aga	gcc	atc	cta	agc	cgt	cga	gcc			3162
Trp	Ala	Ser	Leu	Tyr	Thr	Arg	Arg	Ala	Ile	Leu	Ser	Arg	Arg	Ala			
1040									1045							1050	
gct	ggt	gtt	tat	cag	aga	gac	gcg	aca	atg	gct	gtt	ctt	gtc	caa			3207
Ala	Gly	Val	Tyr	Gln	Arg	Asp	Ala	Thr	Met	Ala	Val	Leu	Val	Gln			
1055									1060							1065	
gaa	ata	ctg	cag	cca	gat	ctc	tcc	ttc	gtg	ctt	cat	act	gtt	tgc			3252
Glu	Ile	Leu	Gln	Pro	Asp	Leu	Ser	Phe	Val	Leu	His	Thr	Val	Cys			
1070									1075							1080	
ccc	gct	gac	cat	gac	ccc	aag	gtt	gtc	cag	gct	gag	gtc	gcc	cct			3297
Pro	Ala	Asp	His	Asp	Pro	Lys	Val	Val	1090	Ala	Glu	Val	Ala	Pro			
1085															1095		
ggg	ctg	ggt	gaa	acg	ctt	gct	tca	gga	acc	cgt	ggc	acc	ccg	tgg			3342
Gly	Leu	Gly	Glu	Thr	Leu	Ala	Ser	Gly	Thr	Arg	Gly	Thr	Pro	Trp			
1100									1105							1110	
agg	ctg	tca	tgt	aac	aaa	ttc	gat	gga	aaa	gtt	gcc	act	ctt	gcc			3387
Arg	Leu	Ser	Cys	Asn	Lys	Phe	Asp	Gly	Lys	Val	Ala	Thr	Leu	Ala			
1115									1120							1125	
ttt	tca	aat	ttc	agt	gag	gag	atg	gtg	gtg	cac	aac	tct	gtt	cct			3432
Phe	Ser	Asn	Phe	Ser	Glu	Glu	Met	Val	Val	His	Asn	Ser	Gly	Pro			
1130									1135							1140	
gcc	aat	gga	gaa	gta	att	cgt	ctt	act	gtt	gat	tac	agc	aag	aag			3477
Ala	Asn	Gly	Glu	Val	Ile	Arg	Leu	Thr	Val	Asp	Tyr	Ser	Lys	Lys			
1145									1150							1155	
cca	ttg	tcg	gtt	gat	aca	acc	ttt	agg	aag	cag	ttt	ggt	cag	cga			3522
Pro	Leu	Ser	Val	Asp	Thr	Thr	Phe	Arg	Lys	Gln	Phe	Gly	Gln	Arg			
1160									1165							1170	
ctg	gct	gcg	att	ggc	cag	tat	ctg	gag	cag	aag	ttc	ggg	agt	gca			3567
Leu	Ala	Ala	Ile	Gly	Gln	Tyr	Leu	Glu	Gln	Lys	Phe	Gly	Ser	Ala			
1175									1180							1185	
cag	gat	gtg	gaa	ggt	tgc	ctg	gtt	ggg	aaa	gat	att	ttt	ata	gtg			3612
Gln	Asp	Val	Glu	Gly	Cys	Leu	Val	Gly	Lys	Asp	Ile	Phe	Ile	Val			
1190									1195							1200	

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caa agc agg cca cag cca tag aagccgaatt c 3644
 Gln Ser Arg Pro Gln Pro
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<211> 1206

<212> PRT

<213> Oryza sativa

<400> 4

Met Thr Ser Leu Arg Pro Leu Glu Thr Ser Leu Ser Ile Gly Gly Arg
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Pro Arg Arg Gly Leu Val Leu Pro Pro Pro Gly Val Gly Ala Gly Val
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Leu Leu Arg Arg Gly Ala Met Ala Leu Pro Gly Arg Arg Gly Phe Ala
 35 40 45

Cys Arg Gly Arg Ser Ala Ala Ser Ala Ala Glu Arg Thr Lys Glu Lys
 50 55 60

Lys Arg Arg Asp Ser Ser Lys Gln Pro Leu Val His Leu Gln Val Cys
 65 70 75 80

Leu Glu His Gln Val Lys Phe Gly Glu His Val Gly Ile Ile Gly Ser
 85 90 95

Thr Lys Glu Leu Gly Ser Trp Glu Glu Gln Val Glu Leu Glu Trp Thr
 100 105 110

Thr Asn Gly Trp Val Cys Gln Leu Lys Leu Pro Gly Glu Thr Leu Val
 115 120 125

Glu Phe Lys Phe Val Ile Phe Leu Val Gly Gly Lys Asp Lys Ile Trp
 130 135 140

Glu Asp Gly Asn Asn Arg Val Val Glu Leu Pro Lys Asp Gly Lys Phe
 145 150 155 160

Asp Ile Val Cys His Trp Asn Arg Thr Glu Glu Pro Leu Glu Leu Leu
 165 170 175

Gly Thr Pro Lys Phe Glu Leu Val Gly Glu Ala Glu Lys Asn Thr Gly
 180 185 190

Glu Asp Ala Ser Ala Ser Val Thr Phe Ala Pro Glu Lys Val Gln Asp
 195 200 205

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Ile Ser Val Val Glu Asn Gly Asp Pro Ala Pro Glu Ala Glu Ser Ser
 210 215 220

Lys Phe Gly Gly Gln Trp Gln Gly Ser Lys Thr Val Phe Met Arg Ser
 225 230 235 240

Asn Glu His Leu Asn Lys Glu Ala Asp Arg Met Trp Asp Thr Thr Gly
 245 250 255

Leu Asp Gly Ile Ala Leu Lys Leu Val Glu Gly Asp Lys Ala Ser Arg
 260 265 270

Asn Trp Trp Arg Lys Leu Glu Val Val Arg Gly Ile Leu Ser Glu Ser
 275 280 285

Phe Asp Asp Gln Ser Arg Leu Gly Ala Leu Val Tyr Ser Ala Ile Tyr
 290 295 300

Leu Lys Trp Ile Tyr Thr Gly Gln Ile Ser Cys Phe Glu Asp Gly Gly
 305 310 315 320

His His Arg Pro Asn Lys His Ala Glu Ile Ser Arg Gln Ile Phe Arg
 325 330 335

Glu Leu Glu Met Met Tyr Tyr Gly Lys Thr Thr Ser Ala Lys Asp Val
 340 345 350

Leu Val Ile Arg Lys Ile His Pro Phe Leu Pro Ser Phe Lys Ser Glu
 355 360 365

Phe Thr Ala Ser Val Pro Leu Thr Arg Ile Arg Asp Ile Ala His Arg
 370 375 380

Asn Asp Ile Pro His Asp Leu Lys Gln Glu Ile Lys His Thr Ile Gln
 385 390 395 400

Asn Lys Leu His Arg Asn Ala Gly Pro Glu Asp Leu Ile Ala Thr Glu
 405 410 415

Val Met Leu Ala Arg Ile Thr Lys Thr Pro Gly Glu Tyr Ser Glu Thr
 420 425 430

Phe Val Glu Gln Phe Thr Ile Phe Tyr Ser Glu Leu Lys Asp Phe Phe
 435 440 445

Asn Ala Gly Ser Leu Phe Glu Gln Leu Glu Ser Ile Lys Glu Ser Leu
 450 455 460

Asn Glu Ser Gly Leu Glu Val Leu Ser Ser Phe Val Glu Thr Lys Arg
 465 470 475 480

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Ser Leu Asp Gln Val Asp His Ala Glu Asp Leu Asp Lys Asn Asp Thr
 485 490 495

Ile Gln Ile Leu Met Thr Thr Leu Gln Ser Leu Ser Ser Leu Arg Ser
 500 505 510

Val Leu Met Lys Gly Leu Glu Ser Gly Leu Arg Asn Asp Ala Pro Asp
 515 520 525

Asn Ala Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu Ile Ser Leu
 530 535 540

Glu Asp Tyr Ser Phe Val Leu Leu Ser Arg Phe Ile Asn Thr Leu Glu
 545 550 555 560

Ala Leu Gly Gly Ser Ala Ser Leu Ala Lys Asp Val Ala Arg Asn Thr
 565 570 575

Thr Leu Trp Asp Thr Thr Leu Asp Ala Leu Val Ile Gly Ile Asn Gln
 580 585 590

Val Ser Phe Ser Gly Trp Lys Thr Asp Glu Cys Ile Ala Ile Gly Asn
 595 600 605

Glu Ile Leu Ser Trp Lys Gln Lys Gly Leu Ser Glu Ser Glu Gly Cys
 610 615 620

Glu Asp Gly Lys Tyr Ile Trp Ser Leu Arg Leu Lys Ala Thr Leu Asp
 625 630 635 640

Arg Ala Arg Arg Leu Thr Glu Glu Tyr Ser Glu Ala Leu Leu Ser Ile
 645 650 655

Phe Pro Glu Lys Val Met Val Ile Gly Lys Ala Leu Gly Ile Pro Asp
 660 665 670

Asn Ser Val Arg Thr Tyr Thr Glu Ala Glu Ile Arg Ala Gly Ile Val
 675 680 685

Phe Gln Val Ser Lys Leu Cys Thr Val Leu Gln Lys Ala Ile Arg Glu
 690 695 700

Val Leu Gly Ser Thr Gly Trp Asp Val Leu Val Pro Gly Val Ala His
 705 710 715 720

Gly Thr Leu Met Arg Val Glu Arg Ile Leu Pro Gly Ser Leu Pro Ser
 725 730 735

Ser Val Lys Glu Pro Val Val Leu Ile Val Asp Lys Ala Asp Gly Asp
 740 745 750

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Glu Glu Val Lys Ala Ala Gly Asp Asn Ile Val Gly Val Ile Leu Leu
 755 760 765

Gln Glu Leu Pro His Leu Ser His Leu Gly Val Arg Ala Arg Gln Glu
 770 775 780

Asn Val Val Phe Val Thr Cys Glu Tyr Asp Asp Thr Val Thr Asp Val
 785 790 795 800

Tyr Leu Leu Glu Gly Lys Tyr Ile Arg Leu Glu Ala Ser Ser Ile Asn
 805 810 815

Val Asn Leu Ser Ile Val Ser Glu Lys Asn Asp Asn Ala Val Ser Thr
 820 825 830

Glu Pro Asn Ser Thr Gly Asn Pro Phe Gln Gln Lys Leu Gln Asn Glu
 835 840 845

Phe Ser Leu Pro Ser Asp Ile Glu Met Pro Leu Gln Met Ser Lys Gln
 850 855 860

Lys Ser Lys Ser Gly Val Asn Gly Ser Phe Ala Ala Leu Glu Leu Ser
 865 870 875 880

Glu Ala Ser Val Glu Ser Ala Gly Ala Lys Ala Ala Ala Cys Arg Thr
 885 890 895

Leu Ser Val Leu Ala Ser Leu Ser Asn Lys Val Tyr Ser Asp Gln Gly
 900 905 910

Val Pro Ala Ala Phe Arg Val Pro Ser Gly Ala Val Ile Pro Phe Gly
 915 920 925

Ser Met Glu Asp Ala Leu Lys Lys Ser Gly Ser Leu Glu Ser Phe Thr
 930 935 940

Ser Leu Leu Glu Lys Ile Glu Thr Ala Lys Val Glu Asn Gly Glu Val
 945 950 955 960

Asp Ser Leu Ala Leu Glu Leu Gln Ala Ile Ile Ser His Leu Ser Pro
 965 970 975

Pro Glu Glu Thr Ile Ile Phe Leu Lys Arg Ile Phe Pro Gln Asp Val
 980 985 990

Arg Leu Ile Val Arg Ser Ser Ala Asn Val Glu Asp Leu Ala Gly Met
 995 1000 1005

Ser Ala Ala Gly Leu Tyr Asp Ser Ile Pro Asn Val Ser Leu Met
 1010 1015 1020

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Asp Pro Cys Ala Phe Gly Ala Ala Val Gly Lys Val Trp Ala Ser
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Leu Tyr Thr Arg Arg Ala Ile Leu Ser Arg Arg Ala Ala Gly Val
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Tyr Gln Arg Asp Ala Thr Met Ala Val Leu Val Gln Glu Ile Leu
 1055 1060 1065

Gln Pro Asp Leu Ser Phe Val Leu His Thr Val Cys Pro Ala Asp
 1070 1075 1080

His Asp Pro Lys Val Val Gln Ala Glu Val Ala Pro Gly Leu Gly
 1085 1090 1095

Glu Thr Leu Ala Ser Gly Thr Arg Gly Thr Pro Trp Arg Leu Ser
 1100 1105 1110

Cys Asn Lys Phe Asp Gly Lys Val Ala Thr Leu Ala Phe Ser Asn
 1115 1120 1125

Phe Ser Glu Glu Met Val Val His Asn Ser Gly Pro Ala Asn Gly
 1130 1135 1140

Glu Val Ile Arg Leu Thr Val Asp Tyr Ser Lys Lys Pro Leu Ser
 1145 1150 1155

Val Asp Thr Thr Phe Arg Lys Gln Phe Gly Gln Arg Leu Ala Ala
 1160 1165 1170

Ile Gly Gln Tyr Leu Glu Gln Lys Phe Gly Ser Ala Gln Asp Val
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Glu Gly Cys Leu Val Gly Lys Asp Ile Phe Ile Val Gln Ser Arg
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Pro Gln Pro
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<210> 5

<211> 12

<212> PRT

<213> Oryza sativa, Arabidopsis thaliana

<400> 5

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<211> 9

<212> PRT

<213> Solanum tuberosum

<400> 6

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<210> 7

<211> 7

<212> PRT

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<400> 7

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1 5

<210> 8

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Arg Phe Val Asn Ala Val Glu
1 5

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<400> 9

Glu Gly Ser Glu Asp Gly Lys
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<210> 10

<211> BCS 04-5004-PCT_OK1 Verringerte Aktivität_SEQUENZPROTOKOLL.ST25
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<223>

<210> 11

<211> 134

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<213> Solanum tuberosum

<400> 11

BCS_04-5004-PCT_OK1 Verringerte Aktivität_SEQUENZPROTOKOLL_ST25
Ala Asp Ala Ser Ile Ala Met Arg Gln Lys Trp Arg Leu Cys Glu Ile
1 5 10 15

Gly Leu Glu Asp Tyr Ala Phe Val Leu Leu Ser Arg Phe Val Asn Ala
20 25 30

Val Glu Ala Leu Gly Gly Ala Asp Trp Leu Ala Glu Asn Val Thr Val
35 40 45

Lys Asn Ile Ser Ser Trp Asn Asp Pro Ile Gly Ala Leu Thr Val Gly
50 55 60

Ile Gln Gln Leu Gly Ile Ser Gly Trp Lys Pro Glu Glu Cys Lys Ala
65 70 75 80

Val Gly Asn Glu Leu Leu Ser Trp Lys Glu Arg Gly Ile Ser Glu Ile
85 90 95

Glu Gly Ser Glu Asp Gly Lys Thr Ile Trp Ala Leu Arg Leu Lys Ala
100 105 110

Thr Leu Asp Arg Ser Arg Arg Leu Thr Glu Glu Tyr Ser Glu Thr Leu
115 120 125

Leu Gln Ile Phe Pro Glu
130